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Final Search

Amendment and Response Under 37 C.F.R. 1.116
Applicant: Thomas A. Saks
Serial No.: 09/940,363
Filed: August 27, 2001
Docket No.: 10011180-1
Title: **MEASUREMENT AND MARKING DEVICE**

whercin the positional sensing assembly communicates with the first side of the housing through the first opening and the printhead assembly communicates with the first side of the housing through the second opening.

2. The measurement and marking device of claim 1, wherein the positional sensing assembly is adapted to sense a position of the housing relative to a first object and measure a dimension of the first object as the housing is moved along a surface of the first object, wherein the positional sensing assembly is adapted to sense a position of the housing relative to a second object as the housing is moved along a surface of the second object, and wherein the controller is adapted to operate the printhead assembly to print the mark on the surface of the second object based on the dimension of the first object and the position of the housing relative to the second object as the housing is moved along the surface of the second object.
3. The measurement and marking device of claim 2, further comprising:
 - a user interface mounted on the housing and communicating with the controller, wherein the user interface includes an input configured for operation by a user of the measurement and marking device,
 - wherein the controller is adapted to record the position of the housing relative to the first object when the input is operated by the user.
4. The measurement and marking device of claim 3, wherein the controller is adapted to operate the printhead assembly to print the mark on the surface of the second object based on the position of the housing relative to the first object when the input is operated by the user and the position of the housing relative to the second object as the housing is moved along the surface of the second object.
5. The measurement and marking device of claim 1, wherein the controller is adapted to operate the printhead assembly to print a plurality of markings on the surface of the object at predetermined intervals as the housing is moved along the surface of the object.

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6. The measurement and marking device of claim 5, wherein the plurality of markings represent one of standard measurements and scaled measurements.

7. The measurement and marking device of claim 1, wherein the printhead assembly is adapted to print at least one of graphics and text on the surface of the object as the housing is moved along the surface of the object.

8. The measurement and marking device of claim 1, wherein the positional sensing assembly includes a wheel rotatably mounted in the housing, wherein the wheel is adapted to contact the surface of the object and rotate as the housing is moved along the surface of the object, and wherein the controller is adapted to determine the position of the housing relative to the object based on rotation of the wheel.

9. The measurement and marking device of claim 1, wherein the positional sensing assembly includes an optical sensor mounted in the housing, wherein the optical sensor is adapted to sense the surface of the object as the housing is moved along the surface of the object, and wherein the controller is adapted to determine the position of the housing relative to the object based on the surface of the object.

10. (Previously Cancelled)

11. (Previously Cancelled)

12. The measurement and marking device of claim 1, wherein the printhead assembly includes a plurality of orifices formed in a front face thereof, wherein the front face communicates with the first side of the housing.

13. The measurement and marking device of claim 1, further comprising:
a power supply mounted in the housing, wherein the power supply supplies power to the measurement and marking device.

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14. (Amended) A method of printing a measurement marking on an object, the method comprising the steps of:

moving a housing along a surface of the object, including orienting a first side of the housing substantially parallel with the surface of the object;

sensing a position of the housing relative to the object with a positional sensing assembly mounted in the housing and communicated with the first side of the housing through a first opening in the first side of the housing; and

printing the measurement marking on the surface of the object with a printhead assembly mounted in the housing and communicated with the first side of the housing through a second opening in the first side of the housing when the position of the housing relative to the object corresponds to a predetermined position.

15. The method of claim 14, wherein the step of printing the measurement marking on the surface of the object includes printing a plurality of measurement markings on the surface of the object at predetermined intervals.

16. The method of claim 15, wherein printing the plurality of measurement markings includes printing one of a plurality of standard length units and a plurality of scaled length units on the surface of the object.

17. (Previously Cancelled)

18. The method of claim 14, wherein the step of printing the measurement marking on the surface of the object includes printing at least one of graphics and text on the surface of the object.

19. The method of claim 14, further comprising the step of:

receiving and storing the predetermined position of the housing for printing the measurement marking at a controller mounted within the housing.

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20. The method of claim 14, wherein the step of moving the housing along the surface of the object includes contacting the surface of the object with a wheel rotatably mounted in the housing and rotating the wheel relative to the housing, and wherein the step of sensing the position of the housing includes determining the position of the housing relative to the object based on rotation of the wheel.

21. The method of claim 14, wherein the step of moving the housing along the surface of the object includes sensing the surface of the object with an optical sensor mounted in the housing, and wherein the step of sensing the position of the housing includes determining the position of the housing relative to the object based on the surface of the object.

22. (Amended) A method of transferring a measurement of a first object to a second object, the method comprising the steps of:

moving a housing along a surface of the first object, including orienting a first side of the housing substantially parallel with the surface of the first object;

sensing a position of the housing relative to the first object with a positional sensing assembly mounted in the housing and communicated with the first side of the housing through a first opening in the first side of the housing as the housing is moved along the surface of the first object;

locating a feature of the first object, including recording the position of the housing at the feature of the first object;

moving the housing along a surface of the second object, including orienting the first side of the housing substantially parallel with the surface of the second object;

sensing a position of the housing relative to the second object with the positional sensing assembly as the housing is moved along the surface of the second object; and

printing a mark representing the feature of the first object on the surface of the second object with a printhead assembly mounted in the housing and communicated with the first side of the housing through a second opening in the first side of the housing when the position of the housing relative to the second object coincides with the position of the housing at the feature of the first object.

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23. The method of claim 22, wherein the step of sensing the position of the housing relative to the first object includes measuring a dimension of the first object, wherein the step of locating the feature of the first object includes measuring at least one of a dimension to the feature of the first object and a dimension of the feature of the first object, and wherein the step of printing the mark on the surface of the second object includes printing the mark on the surface of the second object when the position of the housing relative to the second object coincides with the at least one of the dimension to the feature of the first object and the dimension of the feature of the first object.

24. The method of claim 22, wherein the step of locating the feature of the first object includes receiving a user input at the position of the housing at the feature of the first object.

25. The method of claim 24, wherein recording the position of the housing at the feature of the first object includes storing the position of the housing at the feature of the first object with the user input in a controller mounted in the housing.

26. (Previously Cancelled)

27. The method of claim 22, wherein the step of printing the mark on the surface of the second object includes printing at least one of graphics and text on the surface of the second object.

28. The method of claim 22, wherein the steps of moving the housing along the surface of the first object and the surface of the second object each include contacting the surface of the first object and the surface of the second object with a wheel rotatably mounted in the housing and rotating the wheel, wherein the steps of sensing the position of the housing relative to the first object and the second object each include determining the position of the housing relative to the first object and the second object based on rotation of the wheel.

29. The method of claim 22, wherein the steps of moving the housing along the surface of the first object and the surface of the second object each include sensing the surface of the

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first object and the surface of the second object with an optical sensor mounted in the housing, and wherein the steps of sensing the position of the housing relative to the first object and the second object each include determining the position of the housing relative to the first object and the second object based on the surface of the first object and the surface of the second object, respectively.